

Evolution of Forward-Deployed Torpedo Concept - Kamikaze Drone Submarines Hitching Rides with Commercial Vessels to Evade Detection, Mitigate Energy Use and Deter Adversary from Attacking Platforms

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Introduction

As modern navies are quietly shifting toward a strategy of deploying large numbers of unmanned drone or autonomous submarines, many of which are intended to act solely as a sort of forward-deployed torpedo (but would naturally include a passive sensor and communications suite,) victory in a future naval conflict may be decided according to which contender builds the largest quantity of these ships and does the best job of either camouflaging or otherwise protecting them.

Abstract

One of the principal engineering challenges associated with adapting to this new paradigm is finding a power source capable of supporting high-endurance missions of perhaps multiple years. While solar power has already been proposed, this would offer insufficient energy to support operations outside of the well-traveled currents of the world's oceans. While the initial concept from 2022 described (ibid.) a circulating series of perhaps 1000 or more of these drones which are limited to certain convective ocean channels, the next logical step in any endeavor aimed at maintaining subaquatic dominance would be to find a way to enable these drones to access the central bulk of the Atlantic and Pacific Oceans despite having limited capacity to travel on battery power.

The most practical solution to this challenge, short of employing electroweak-driven spontaneously regenerative voltage cells (ibid. ;) which are not yet operational; would be for these drones to "hitch a ride" on commercial vessels by using a vacuum mechanism in order to adhere themselves to the ventral hull of ships without the knowledge of the commercial operators.

As the positions of commercial vessels (including those associated with the commercial sector of the adversary nation) are tracked in real-time and their customary routes are well-established, hitching a ride with a commercial naval vessel would be a highly effective mechanism for delivering intelligent torpedoes to the vicinity of a target-rich environment. Beyond energy conservation, this approach would mitigate the probability of the detection of the drones by an adversary and, in the event of detection, would likely provide a powerful deterrent (particularly if one of their own commercial vessels were impacted) to any attempt to destroy the drone.

In order to mitigate the risk of the operator of a commercial vessel suspecting such activity, the drone would need to both be affixed to the precise center of the hull and would need to ensure its alignment with the commercial vessel.

These drones could also hitch "authorized" rides with non-stealthy components of any navy in order to arrive at a particular destination. As explained in a previous publication, clusters of these ships can be used maliciously in order to, when the situation calls for it, force a surface ship beneath the water by creating negative buoyancy either for the purposes of elimination of the crew or for the purposes of the theft of a surface vessel.

In addition to their capacity to be used in direct naval combat, these drones could be used to electronically and acoustically eavesdrop upon ambient radio traffic as well as activities transpiring within ships, including other submarines. Recent advancements in nanotechnology should enable such a drone to, for example, adhere itself to an adversary ship, penetrate the hull in order to inject nearly-microscopic airborne spy devices and subsequently seal the breach created, perhaps using an rapid-alternation Coulomb-based smelting approach. With such an approach, it would be a relatively simple matter to create a water-tight lock around a narrow section of hull of a submarine for instance, transiently liquefy the hull without causing an implosion and use a needle mechanism in order to inject autonomous espionage equipment into the vessel, which would be programmed to explore the overall space of the vessel and return to the injection location average a pre-ordained period of reconnaissance.

Even in the event that more conventional approaches to liquefying the hull (such as a cutting LASER,) must be resorted to, this approach should be feasible given the availability of additive manufacturing approaches which enable the deposition of durable metals so as to repair the damage created in order to gain access to the vessel. It should be possible to restore a vessel targeted for this type of reconnaissance, even in the case of submarines, to full structural integrity by employing either electroweak-liquefaction techniques such as those proposed by this author (the advantage being that this would not require a repair, merely a suspension of the liquefying field effect) or, alternatively, LASER ablation and subsequent repair through AM means of the injection site.

Conclusion

Drone or autonomous undersea platforms, particularly given the ability of various nation-states to detect submarines from orbit, will be critical components of naval warfare as we enter the mid-21st Century. Not only are aircraft carriers becoming too vulnerable to attack by autonomous undersea systems to justify reliance upon those platforms, manned submarines are too readily detected to justify their continued use without major modification to our overall strategy. Thus, it will soon become necessary to use commercial vessels as both concealment for and protection of these autonomous systems during their extended periods of loiter.